

REMARKS

Claims 13, 19, 22, and 23 were previously cancelled. Claims 16 and 24 have been cancelled. Claims 40 – 44 were previously withdrawn. Claims 1 and 34 have been amended. No new matter has been added. Thus, claims 1 – 12, 14, 15, 17, 18, 20, 21, and 25 – 44 remain pending in the present application. In view of the above amendments and the following remarks, it is respectfully submitted that all of the pending claims are allowable.

Claims 1 – 12, 14 – 18, 20, 21, and 24 – 33 stand rejected under 35 U.S.C. § 112, second paragraph, as indefinite. (See 9/13/11 Office Action, p. 2). Specifically, the Examiner states that there is a triple recitation of “a reciprocating object” in claim 1 that make subsequent references to “the reciprocating object” unclear. Claim 1 has been amended to clarify that there is only a single reciprocating object and that all further references relate to the original “a reciprocating object.” Thus, it is respectfully submitted that these claims are clear and the 35 U.S.C. § 112, second paragraph, rejection should be withdrawn.

Claims 34 – 39 stand rejected under 35 U.S.C. § 112, second paragraph, as indefinite. (See 9/13/11 Office Action, p. 2). Specifically, the Examiner states that there is a triple recitation of “a reciprocating object” in claim 34 that make subsequent references to “the reciprocating object” unclear. Claim 34 has been amended to clarify that there is only a single reciprocating object and that all further references relate to the original “a reciprocating object.” Thus, it is respectfully submitted that these claims are clear and the 35 U.S.C. § 112, second paragraph, rejection should be withdrawn.

Claims 1 – 4, 7 – 12, 14, 15, 24, 25, and 33 – 39 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 4,854,721 to Hume. (See 9/13/11 Office Action, p. 3).

Claim has been amended to recite a “position sensor device for determining a position of a reciprocating object” comprising “a plurality of magnetically encoded regions fixed on the reciprocating object,” “a plurality of magnetic field detectors,” and “a position determining unit,” wherein “the plurality of magnetic field detectors is adapted to detect a sequence of signals generated by the magnetically encoded regions when the magnetically encoded regions

reciprocating with the reciprocating object passes a surrounding areas of the magnetic field detectors” and wherein “the position determining unit is adapted to determine a position of the reciprocating object based on the detected sequence of magnetic signals.” The subject matter of claims 16 and 24 have been incorporated into claim 1. Support for the further amendments to claim 1 can be found in the Specification at least on page 80, ll. 3 – 8.

It is respectfully submitted that Hume does not disclose the above recitation of claim 1, in particular, the basis on “the detected *sequence* of magnetic signals.” Hume discloses several types of signals such as an activation signal to provide a driving voltage and a control signal to cause the pistons to reverse direction. However, these signals are conventional ones used for different purposes. Hume further discloses one related to a magnitude of the strength of the magnetic field. However, only a single signal of this type is used for terminating a stroke upon a comparison. In its entirety, Hume does not disclose or suggest determining a position as a function of a sequence of magnetic signals and also does not disclose or suggest a sequence of signals at all.

Thus, it is respectfully submitted that Hume does not disclose or suggest the above recitation of claim 1 and that claim 1 is allowable. Accordingly, it is respectfully submitted that the Examiner should withdraw the 35 U.S.C. § 102(b) rejection for this claim. Because claims 2 – 4, 7 – 12, 14, 15, 24, 25, and 33 depend from and include the limitations of claim 1, it is respectfully submitted that these claims are also allowable.

Claim 34 recites a position sensor array comprising “a reciprocating object” and “a position sensor device determining a position of the reciprocating object,” wherein “the position sensor device includes at least one a plurality of magnetically encoded regions fixed on the reciprocating object, at least one a plurality of magnetic field detectors, and a position determining unit,” wherein “the plurality of magnetic field detectors is adapted to detect a sequence of signals generated by the magnetically encoded regions when the magnetically encoded regions reciprocating with the reciprocating object passes a surrounding areas of the magnetic field detectors and wherein the position determining unit is adapted to determine a position of the reciprocating object based on the detected sequence of magnetic signals.”

Thus, it is respectfully submitted that claim 34 is also allowable for at least the reasons discussed above with reference to claim 1. Accordingly, it is respectfully submitted that the Examiner should withdraw the 35 U.S.C. § 102(b) rejection for this claim. Because claims 35 – 39 depend from and include the limitations of claim 34, it is respectfully submitted that these claims are also allowable.

Claims 5, 6, 16 – 18, 20, 21, 26 – 32, 37, and 38 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Hume. (See 9/13/11 Office Action, p. 4). Claims 1 and 34 were recited above. Hume was discussed above.

As discussed above, Hume does not disclose the recitations of claims 1 and 34. Because claims 5, 6, 16 – 18, 20, 21, 26 – 32, 37, and 38 depend from and include the limitations of allowable claims, it is respectfully submitted that these claims are also allowable.

CONCLUSION

In light of the foregoing, Applicant respectfully submits that all of the presently pending claims are in condition for allowance. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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